



LBV311-CXAGCNKMX

LBV301

VIBRATING LEVEL SWITCH

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|------------------|----------|
| LBV311-CXAGCNKMX | 6053575 |

Other models and accessories → www.sick.com/LBV301

Detailed technical data

Features

| | |
|------------------------------|---|
| Medium | Bulk solids |
| Measurement | Switch |
| Probe length | 160 mm |
| Process pressure | -1 bar ... 16 bar |
| Process temperature | -50 °C ... +150 °C |
| Fill material density | ≥ 0.02 g/cm ³ |
| ATEX approval | ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb |
| Type examination | PTB 17 ATEX 2016 X |

Performance

| | |
|-----------------------------------|---|
| Accuracy of sensor element | ± 10 mm |
| Reproducibility | ≤ 5 mm |
| Response time | 500 ms when covered / 1,000 ms when uncovered |
| MTBF | 4,17*10 ⁶ h |

Electronics

| | |
|-------------------------------|------------------------------------|
| Power consumption | 1 mA / 2,5 mA |
| Initialization time | < 2 s |
| VDE protection class 2 | ✓ |
| Connection type | M20 x 1.5 |
| Output signal | NAMUR signal |
| Supply voltage | NAMUR signal: 4.5 V DC ... 12 V DC |
| Hysteresis | 10 mm |
| Output current | 1 mA / 2,5 mA |
| Enclosure rating | IP66 / IP67 |

Mechanics

| | |
|---------------------------|---------|
| Process connection | G 1 A |
| Housing material | Plastic |

| | |
|------------------------|----------------------------|
| Sensor material | Stainless steel 316L, 318S |
|------------------------|----------------------------|

Ambient data

| | |
|--------------------------------------|-------------------|
| Ambient operating temperature | -40 °C ... +70 °C |
| Ambient temperature, storage | -40 °C ... +80 °C |

Classifications

| | |
|-----------------------|----------|
| ECLASS 5.0 | 27273202 |
| ECLASS 5.1.4 | 27273202 |
| ECLASS 6.0 | 27273202 |
| ECLASS 6.2 | 27273202 |
| ECLASS 7.0 | 27273202 |
| ECLASS 8.0 | 27273202 |
| ECLASS 8.1 | 27273202 |
| ECLASS 9.0 | 27273202 |
| ECLASS 10.0 | 27273202 |
| ECLASS 11.0 | 27273202 |
| ECLASS 12.0 | 27273106 |
| ETIM 5.0 | EC002654 |
| ETIM 6.0 | EC002654 |
| ETIM 7.0 | EC002654 |
| ETIM 8.0 | EC002654 |
| UNSPSC 16.0901 | 41111938 |

Type code

LBV311 type code

Certification

| | |
|----|--|
| XX | without |
| CX | ATEX II 1G, ½ G, 2G Ex ia IIC T6 |
| CK | ATEX II 1G, ½ G, 2G Ex ia IIC T6 + 1D, 1/2D, 2D Ex tD IP66 T |
| LX | ATEX II ½ G, 2G Ex d IIC T6 |
| LK | ATEX II ½ G, 2G Ex d IIC T6 + 1D, ½ D, 2D Ex tD IP66 T |
| GX | ATEX II 1D, ½ D, 2D Ex tD IP66 T |

Execution / Process temperature

| | |
|---|---|
| A | Standard / -50 °C ... +150 °C |
| B | With spacer / -50 °C ... +250 °C |
| C | Detection of solids in water / -50 °C ... +150 °C |

Process connection / Material (see below)

Electronics

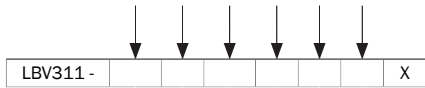
| | |
|---|--|
| C | Contact-free switch 20 ... 253 V AC (DC) |
| R | Relay (DPDT) 20 ... 72 V DC / 20 ... 253 V AC (3A) |
| T | Transistor (NPN/PNP) 10 ... 55 V DC |
| N | NAMUR signal |

Housing / Enclosure rating

| | |
|---|--|
| K | Plastic / IP 66, IP 67 |
| A | Aluminum / IP 66, IP 67 |
| V | Stainless steel (investment casting) 316L / IP 66, IP 67 |
| 8 | Stainless steel (electropolished) 316L / IP 66, IP 67 |

Cable entry / Male connector connection

| | |
|---|---------------------|
| M | M20 x 1.5 / Without |
| N | ½" NPT / Without |



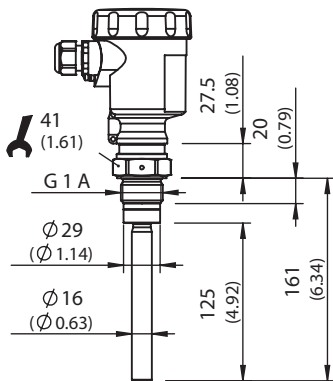
Not all variants of the type code can be combined! Not all available variants are shown.

Process connection / Material

| | | | |
|----|---|----------|--|
| GC | Thread G 1, DIN 3852-A, PN 16 / 316L | EF | Flange DN 50, PN 40, form C, DIN 2501 / 316L |
| GR | Thread G 1, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm | 4F | Flange DN 65, PN 16, form C, DIN 2501 / 316L |
| GG | Thread G 1 ½, DIN 3852-A, PN 16 / 316L | No error | Flange DN 80, PN 40, form C, DIN 2501 / 316L |
| GP | Thread G 1 ½, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm | ZF | Flange DN 100, PN 6, form C, DIN 2501 / 316L |
| NC | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L | MF | Flange DN 100, PN 16, form C, DIN 2501 / 316L |
| NR | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | OF | Flange DN 100, PN 40, form C, DIN 2501 / 316L |
| NH | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L | 3F | Flange DN 125, PN 6, form C, DIN 2501 / 316L |
| NI | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | QF | Flange DN 150, PN 16, form C, DIN 2501 / 316L |
| NG | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L | 2F | Flange DN 200, PN 10, form C, DIN 2501 / 316L |
| NP | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | EB | Flange DN 50, PN 40, EN 1092-1, form B1 / 316L |
| CT | Tri-Clamp 1 ½" / 316L, Ra < 0.8 µm | DA | Flange 1 ½" 150 lb RF, ANSI B16.5 / 316L |
| CV | Tri-Clamp 2" / 316L, Ra < 0.8 µm | EA | Flange 1 ½" 300 lb RF, ANSI B16.5 / 316L |
| CQ | Tri-Clamp 2 ½" / 316L, Ra < 0.8 µm | HA | Flange 2" 150 lb RF, ANSI B16.5 / 316L |
| CM | Tri-Clamp 3 ½" / 316L, Ra < 0.8 µm | IA | Flange 2" 300 lb RF, ANSI B16.5 / 316L |
| RP | Pipe connection DN 40, PN 40, DIN 11851 / 316L, Ra < 0.8 µm | OA | Flange 3" 150 lb RF, ANSI B16.5 / 316L |
| RF | Pipe connection DN 40, PN 40, DIN 11864-1, form A / 316L, Ra < 0.8 µm | OE | Flange 3" 150 lb FF, ANSI B16.5 / 316L |
| RH | Pipe connection DN 65, PN 25, DIN 11851 / 316L, Ra < 0.8 µm | PA | Flange 3" 300 lb RF, ANSI B16.5 / 316L |
| TV | Tuchenhagen Varivent DN 32.1 ½", PN 25 / 316L, Ra < 0.8 µm | PE | Flange 3" 300 lb FF, ANSI B16.5 / 316L |
| C2 | Bundle clamp DN 40, PN 40, DIN 11864-3, form A / 316L, Ra < 0.8 µm | JA | Flange 3 ½" 150 lb RF, ANSI B16.5 / 316L |
| BF | Flange DN 32, PN 40, form C, DIN 2501 / 316L | SA | Flange 4" 150 lb RF, ANSI B16.5 / 316L |
| DF | Flange DN 40, PN 40, form C, DIN 2501 / 316L | UA | Flange 4" 300 lb RF, ANSI B16.5 / 316L |
| AU | Flange DN50 10K RF, JIS / 316L | BU | Flange DN80 10K RF, JIS / 316L |
| HU | Flange DN65 10K RF, JIS / 316L | CU | Flange DN100 10K RF, JIS / 316L |

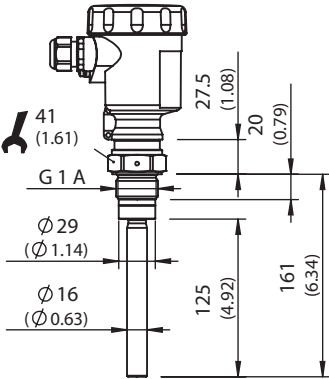
Dimensional drawing (Dimensions in mm (inch))

LBV311 threaded version G 1 ½ A



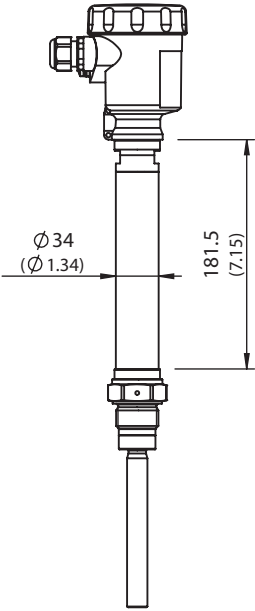
All dimensions in mm (inch)

LBV311 threaded version G 1 A



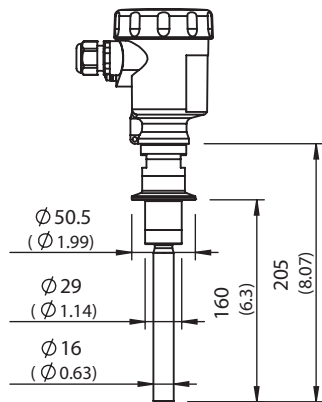
All dimensions in mm (inch)

LBV311 temperature adapter -50 °C ... +250 °C



All dimensions in mm (inch)

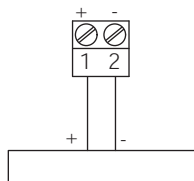
LBV311 threaded version Tri-Clamp



All dimensions in mm (inch)

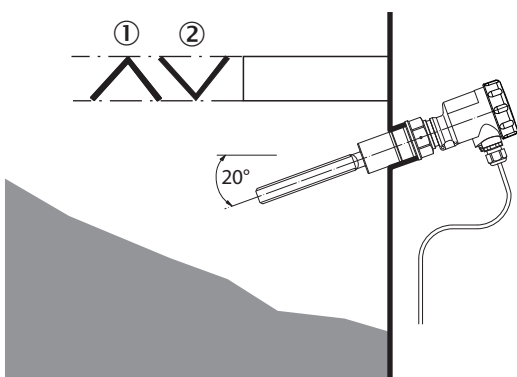
Connection diagram

Namur connection diagram



Instruction for installation

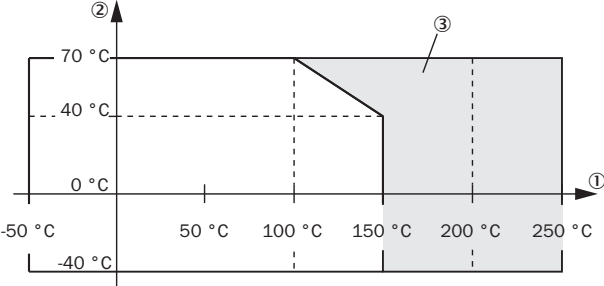
Horizontal mounting



- ① Protective sheet
- ② Concave protective sheet for abrasive solids

Characteristic curve

Ambient temperature - process temperature



- ① Process temperature in °C (°F)
- ② Ambient temperature in °C (°F)
- ③ Temperature range with temperature adapter

SICK AT A GLANCE

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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